

A COLLECTION OF RHOPALOCERA FROM KAKAMEGA.

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INTRODUCTION.

I have recently had the opportunity of looking over and classifying a collection of butterflies made in Kakamega (Kakamega Forest, about ten miles from Kaimosi, on the right bank of the Yala River) from 1935, to 1938: This collection was made by Mr. M. E. Collier, and was made, not with any scientific purpose, but purely as a means of passing spare time. The collector is not a naturalist, and therefore, as is to be expected, there are certain gaps, particularly in the female sex of the species collected. I have, however, decided to review the collection here, as, in spite of the gaps, it does give a very good idea of the species of butterflies to be expected in the Kakamega area. As might be expected in an "amateur" collection such as this, the more showy species, such as *Charaxes* and *Papilio*, predominate, and the smaller species, particularly those of *Lycaenidae* and *Hesperiidae*, are poorly represented. The collection consists of 959 specimens, and includes all the families, many of the sub-families, 57 genera and 135 species. Of these, there are seven species which I have been unable to identify, owing to lack of literature and comparative material to aid me in my identification. The female sex is poorly represented throughout the collection, with the exception of one or two species. In this connection, it must be remembered that, unless one knows the habits of the different species, one seldom sees female butterflies. Female *Charaxes*, in particular, are far from common. They are not attracted to the smelly baits beloved of the males of the genus, and, in fact, one seldom sees them except flying in undergrowth in search of their food-plants, or, occasionally, flying high and fast with a male in pursuit. It will be noticed that *Charaxes* is represented here by males alone.

SYSTEMATIC LIST.

Family DANAIDAE.

Danaus chrysippus (L.).

Seventeen males and three females. Of these, sixteen males and the females are of the form *chrysippus* L. The other male is of the form *alcippus* Cr.

Danaus (Tirumala) limniace petiverana (Dbl.).
Ten males and two females.

Danaus (Melinda) formosa (Gdt.).
Eleven males.

Danaus (Melinda) formosa mercedonia (Karsch.).
Five males.
Some of the *M. formosa formosa* show a darkening of the orange base of the forewing, apparently transitional to the race *mercedonia*. These two races intergrade in this area.

Amauris damocles f. *psyttalea* Plotz.
Thirteen males.

Amauris hecate (Butl.).
One male.

Amauris oscarus Thureau.
Two males.

Amauris echeria jacksoni Sharpe.
Fifteen males.

Amauris albimaculata Butl.
Four males.

Family ACRAEIDAE.

Acraea admatha leucographa Ribbe.
Two males and six females.

Acraea zetes f. *menippe* Drury.
Eight males and four females.

Acraea egina egina Cr.
Four males.

Acraea natalica abadima Ribbe.
One male.

Acraea asboloplintha Karsch.
Eleven males and two females.

Acraea bonasia alicia Sharpe.
Two males.

Acraea sotikensis Sharpe.
One male and one female.

Acraea pharsalus Ward.
Two males.

Acraea penelope Staud.
Three males.

Acraea semivitreata Auriv.
Four males.

Acraea quirinalis Gr.-Sm.
One male.

Bematistes (Planema) poggei nelsoni Smith & Kirby.
One male.

Family NYMPHALIDAE.

Euxanthe crossleyi ansorgei Rothsch.
Eight males.

Charaxes fulvescens.

Twenty-four males.

This species is represented here by what appear to be two races. The predominant race is *Ch. f. monitor* Rothsch, of which there are twenty specimens. The remaining four are of a race which was described by van Someren in "The Butterflies of Kenya and Uganda," Vol. I, Part VII, p. 133, figured on Plate LII. He refrained at the time from applying any name to it, as it was not possible to obtain comparative material necessary for a proper identification. It has since been named *stonehami* Jeffrey, Bull. Stoneham Museum, No. 4, Sept., 1931. The points of difference are: *monitor*. Forewing not acuminate and f.w. border forming practically a straight line. H.w. border regular, not indented, with a broad spatulate "tail" on vein 4. Submarginal f.w. spots. distinct. *stonehami*. Forewing markedly acuminate, and marginal border concave. H.w. border deeply indented between the veins, and the "tail" on vein 4 slenderer than in *monitor*. Submarginal f.w. spots indistinct, but general colour, both above and below, richer than in *monitor*.

Charaxes candiope (Godt.).

Thirty-nine males.

Charaxes cynthia Butlr.

One male.

Charaxes castor Cram.

Twelve males. Ten of these are of the form *godarti* R. & J., with the ground colour of the base of the forewing underside black, not chestnut (in my experience, the predominant form in this area). The remaining two seem to be transitional to the typical form *castor* Cram., in that the ground colour of this area of the forewing underside, though very dark, shows a definite tendency towards chestnut.

Charaxes pollux Cram.

Six males.

Charaxes brutus Cram.

Two males.

Charaxes numenes Hew.

Three males.

Charaxes bipunctatus Rothsch.

Twenty-four males.

Charaxes tiridates Cram.

Nine males.

Charaxes pythodorus Hew.

Thirty-eight males.

Charaxes eupale dilutus Rothsch.

Twelve males.

Charaxes subornatus minor Joic. & Talb.

One male.

Charaxes lichas bebra Rothsch.

Sixteen males.

Charaxes paphianus subpalida Joic. & Talb.

Two males.

Charaxes etesipe Godt.

Eight males.

- Charaxes anticlea adusta* Rothsch.
One male.
- Charaxes etheocles* s.l.
Twenty males of form *violacea* and three males of form *lutacea*.
- Euphaedra uganda kakamegae* van Som.
Three males and four females.
- Euphaedra eleus alternus* van Som.
One male, f. *coprates*, and one female.
- Aterica galene* Brown.
Two males.
- Euryphene sophus audeoudi* Riley.
Eight males and eleven females.
- Cymothoe sangaris hobarti* Btlr.
Eleven males and two females.
- Cymothoe lurida butleri* Grunb.
Seven males.
- Cymothoe herminia johnstoni* Btlr.
One male.
- Euptera elabontas* Hew.
One male.
- Catuna crithea* Drury.
Ten males and four females.
- Pseudacraea lucretia* Cr.
Three males.
- Hypolimnas missippus* (L.).
Nine males and two females, f. *inaria*.
- Hypolimnas dinarcha* Hew.
Three males.
- Hypolimnas anthedon* Dbl.
One male.
- Hypolimnas dubia mima* Trim.
One male.
- Salamis parhassus aethiops* Pal.
Sixteen males and one female.

- Salamis temora* Fldr.
Fourteen males and one female.
- Precis stygia* Auriv.
Twenty-four males.
- Precis pelasgis* Godt.
Two males.
- Precis milonia* Fldr.
One male.
- Precis westermanni* Westw.
Sixteen males.
- Precis sophia albida* Suff.
Two males.
- Precis octavia* f. *natalensis* Stgr.
Two males.
- Precis cebrene* Trim.
One male.
- Precis clelia* Cr.
Twelve males and two females.
- Catacroptera cloanthe* Cr.
One male and one female.
- Kallima ansorgei* Rothsch.
One male.
- Vanessa cardui* (L.).
Three males.
- Atella phalantha* Drury.
Nine males and one female.
- Lachnoptera ayresi* Trimen.
Six males and 2 females.
- Vanessula milca* Hew.
Four males.
- Atanartia delius* Drury.
Three males.
- Atanartia schoenia* Trim.
One male.

Cyrestis camillus F.
Twenty-two males.

Crenis boisduvalii Wlgr.
Two males.

Crenis trimeni Auriv.
Two males.

Neptis saclava marpessa Hppfr.
Five males.

Neptis agatha Stoll.
One male.

Neptis nysiades Hew.
Two males.

Neptis melicerta Drury.
One male.

Neptis metella Dbl. & Hew.
One male.

Neptis woodwardi Sharpe.
One male.

Ergolis pagenstecheri Suff.
Two males.

Eurytela dryope angulata Auriv.
One male.

Eurytela hiarbas Drury.
One male.

Family SATYRIDAE.

Melanitis leda (L.).
One female.

Gnophodes parmeno Dbl. & Hew.
One male.

Neocoenyra gregorii Btlr.
One male.

Ypthima albida Btlr.
One male.

Mycalesis ignobilis Btlr.
Two males.

Mycalesis anynana Btlr.
One male.

Mycalesis dubia Auriv.
One male.

Mycalesis sp.
Six males and four females.
This is a species I have been unable to identify. It is not unlike *M. miriam* F., but a very much darker and richer brown.

Family LIBYTHAEIDAE.

Libythea labdaca Ww.
Four males.

Family RIODINIDAE.

Abisara rogersi Druce.
One male.

Family PAPILIONIDAE.

Papilio dardanus Brown.
Fourteen males and two females, one of the form *hippocoon* F., and one of the form *planemoides* Trim.

Papilio rex.
This species is represented in this area by two races, *rex rex* Oberth., the eastern race, and the western race, *rex mimeticus* Rothsch. Here we have two males and one female of the race *rex*, one male of the race *mimeticus*, and one male which appears to be an intermediate. Total, four males and one female.

Papilio bromius chrapkowskii Suff.
Thirty-six males and six females.

Papilio nireus lyaeus Dbl.
One male.

Papilio mackinnoni Sharpe.
Eighteen males.

Papilio homeyeri Plotz.
Five males.

Papilio demodocus Esp.
Eleven males and two females

Papilio menestheus lormieri Dist.
Twenty-two males.

Papilio phorcas Cr.
Thirty-nine males and one female.

Papilio pylades angolanus Goeze.
One female.

Papilio leonidas F.
One male.

Papilio policines Cr.
Eight males.

Family *PIERIDAE*.

Belenois picta Neave.
Twelve males and one female.

Belenois raffrayi (Oberth.).
Six males.

Anapheis severina Cr.
Ten males.

Anapheis aurota (Fab.).
Four males and three females.

Anapheis gidica abyssinica (Luc.).
Two males and two females.

Appias epaphia (Cr.).
One male.

Catopsilia florella (F.).
Ten males and nine females.

Terias desjardinsi (Bsd.).
Fifteen males and one female.

Terias brigitta zoe Hopf.
One female.

Terias floricola ceres Btlr.
One male and one female.

Leuceronia argia F.
Nine males.

Leuceronia thallasina Bsd.
Nineteen males and one female.

Dixeia pigea (Bsd.).
One male.

Mylothris yeuli Btlr.
Three males.

Mylothris poppaea Cr.
Four males.

Leptosia medusa Cr.
Four males.

In addition to the above *PIERIDAE*, there is one unidentified species. This is superficially like an *Eronia*, but built more on the lines of a large *Leptosia*. It is a male.

Family *LYCAENIDAE*.

Uranothauma falkensteini Dew.
Four males.

Hypolycaena antifaupus Dbl. & Hew.
One male.

Syntarucus telicanus Lang.
Five males.

Lycaenesthes sp.
One male. A very pale mauve species.

Lycaenesthes sp.
Three males.

Azanas jesous Guér.
Three males.

Family HESPERIIDAE.

Celaenorrhinus galenus intermixtus Auriv
Four males.

Eretis lugens (Rog.).
One male.

Ceratrachia flava Hew.
Two males.

Coeliades sp.
Two males.

Coeliades sp.
One male.
One male of an unidentified Hesperid.

From a perusal of the above systematic list, it will be noticed that there are several notable absentees, particularly among the genera *Acraea*, *Charaxes* and *Euphaedra*. That extremely plentiful *Euphaedra* in other parts of Western Kenya, *E. medon fraudata* Thurau, is not represented at all, and the entire genus is represented only by nine specimens. As a matter of fact, this agrees with my own experience in the same forest, where I found *Euphaedra* to be extremely uncommon, especially when compared with the Kabras Forest, some 20 miles away, and the Isioha River, about half that distance away, where, at certain times, *Euphaedra* literally carpeted the ground, particularly in the vicinity of trees the fruit of which were falling. More striking than the absentees, however, are the rarities. *Charaxes numenes* Hew., for instance. This is usually an extremely abundant species, yet here it is represented by only three specimens. *Ch. cynthia* Btlr., again, a very common species, is represented by only one male. On the other hand, a butterfly usually considered rare, *Ch. pythodorus* Hew., is represented by as many as 38 specimens. (In parentheses, I would like to point out that my own experience of this species is that it is far from rare.) I am of opinion that a careful study of the butterfly populations of the various forests in the Kakamega area would be extremely valuable.

EVIDENCE OF ATTACKS ON SPECIMENS BY BIRDS, ETC.

In the collection are thirteen specimens which bear evidence, in the form of cuts in the wings, of attacks by birds or lizards. Most of these (ten specimens) are *Charaxes*, and of these *Charaxes*, all but one, a male of *Ch. fulvescens monitor*, are among the more powerful species of the genus. The remaining

three specimens are a female of *Euphaedra eleus alternus*, a male of *Salamis temora*, and a male of *Papilio policines*.

The damage caused is as follows:—

Ch. f. monitor. A V-shaped nick, symmetrical in each wing, out of each hindwing at the anal angle, showing a probable attack from the rear while the insect was sitting with closed wings.

Ch. candiope. The anal angle and most of the inner margin of the left hindwing removed, showing what was probably an attack while the insect was in flight.

Ch. castor. A small V-shaped nick out of each hindwing at vein 2, showing a probable attack from behind while sitting with wings closed.

Ch. tiridates. (Three specimens.) One has a large portion of the left hindwing from the anal angle to vein 7, and level with the apex of the cell, cleanly removed, as well as a nick at the anal angle of the right hindwing. Probably an attack from the side whilst in flight. Another appears to have been attacked twice. Half of the right hindwing, in a straight line from the tip of vein 2 to about $\frac{1}{3}$ of the way up the costa, has been cleanly removed, together with a large portion of the right forewing. This looks like an attack from the rear, either whilst in flight or while sitting with wings open. The other attack cost the insect the tips of both forewings, and was obviously made whilst sitting with closed wings. The third specimen has a large V-shaped nick out of each hindwing, that on the left extending nearly to vein 4, while the nick on the right does not extend beyond vein 3. The nick on each wing reaches to the apex of the cell. This attack appears to have been made from behind while the insect was sitting with closed wings.

A male of *Ch. bipunctatus* appears to have been attacked, but not seriously. The extreme tip of the left forewing has been removed.

Ch. pythodorus. (Three males.) One has the anal angle of both hindwings removed in what was evidently an attack from the rear whilst sitting with closed wings. A second has a large portion of the left hindwing, from the anal angle to vein 4, removed, as well as a portion of the right hindwing, from the anal angle to vein 2. The third has had a large portion of the right hindwing removed. This damage extends into the wing to a point just distal to the base of vein 2, and reaches from the anal angle to vein 4. It looks like an attack from the rear while the insect was either in flight or sitting with wings open.

Euphaedra eleus alternus, female, has a deep cut, 15 mm. wide, in the left forewing from vein 2-7, and a cut in a straight line with this in the left hindwing from the costa

to vein 4. There is a deep U-shaped nick on the right forewing, the forward edge of which corresponds with the forward edge of the cut on the left forewing. It is difficult to judge how this attack was made.

A male of *Salamis temora* has a cut in each hindwing from the anal angle to vein 4.

A male of *Papilio policines* has the distal half of both hindwings, as well as a portion of the left forewing outer margin, from the hind angle to vein 5, removed. The cut in the forewing forms a straight line with that in the hindwing. The damage indicates an attack, probably from above, while the insect was sitting with closed wings. It is no uncommon sight to see this species bearing damage similar to this.

It will be noticed that all these specimens bear damage apparently due to attack more or less from behind, and, in fact, one seldom, if ever, sees a specimen bearing traces of attack from any other quarter. This may be due to the fact that an attack from the front damages the forewing costa, incapacitating the insect, which consequently does not survive; but I am of opinion that birds and lizards tend to attack from the rear rather than from the front, as, from that angle, they are less likely to be spotted by their prey than in a frontal attack. Field observations made by other observers bear out this theory, and, in any case, the natural direction from which to stalk anything, from a butterfly to an elephant, is that which is most likely to be the prey's "blind side," from behind in the case of those creatures which rely on keen eyesight, and from down-wind in the case of those whose sense of smell is their chief safeguard. The fact that a butterfly is less vulnerable from the rear is, in my opinion, a minor consideration. I say it is less vulnerable because, although it is likely to lose a goodly portion of one or both hindwings, this is not a very serious injury, and affects the power of flight hardly at all. In fact, I have seen butterflies with hardly any hindwings remaining, and apparently just as agile as a perfect specimen. Damage to the forewing costa, on the other hand, is apt seriously to cripple the insect, and if close to the body, to render flight an impossibility. The danger of an insect receiving this type of damage, however, is offset to a great degree by the fact that the insect can see its assailant, and is able to make good its escape before the attack develops. The specimens in this collection which bear damage obviously caused by birds or lizards tend to support this theory, as all, with the exception of two which have lost the tips of the forewings in an attack which might have been either from front or rear, bear injuries which point to attack from behind, most of the damage being to the hindwings, or the hinder edge of the forewings.